

**HOW TO  
IMPROVE  
YOUR**

# **TRACK & FIELD**



**50¢**

# TRACK & FIELD

50¢



## Other Available Books in the "HOW TO IMPROVE YOUR SPORT SERIES"

Prepared under the Direction of  
**The Athletic Institute**

A non-profit organization devoted to the advancement  
of athletics, recreation and physical education.

### HOW TO IMPROVE YOUR TUMBLING

Consultant: Newton C. Loken, Gymnastic Coach, University of Michigan.

### HOW TO IMPROVE YOUR WRESTLING

Consultants: Rex Peery, Wrestling Coach, University of Pittsburgh, and Arnold "Swede" Umbach, Wrestling Coach, Alabama Polytechnic Institute.

50 cents each

Fully Illustrated

Paper

Distributed by

**THE ATHLETIC INSTITUTE**

209 S. State St.

Chicago 4, Ill.

***HOW TO IMPROVE YOUR***

# **TRACK & FIELD**

***CONSULTANT***

**Don Canham**

Track Coach

University of Michigan

***PUBLISHED BY***

**THE ATHLETIC INSTITUTE**

209 S. State Street

Chicago 4, Illinois

A non-profit organization devoted  
to the advancement of athletics,  
recreation and physical education.

9277271

## Foreword

"How To Improve Your Track and Field" is but one item in a comprehensive list of sports instruction aids made available on a non-profit basis by The Athletic Institute. The photographic material in this book has been reproduced in total from The Athletic Institute's sound, color slidefilm, "Beginning Track and Field." This book and the slidefilm are part of a program designed to bring the many benefits of athletics, physical education and recreation to everyone.

The Athletic Institute is a non-profit organization devoted to the advancement of athletics, physical education and recreation. It functions on the premise that athletics and recreation brings benefits of inestimable value to the individual and to the community.

The nature and scope of the many Athletic Institute programs are determined by an advisory committee of selected persons noted for their outstanding knowledge, experience and ability in the fields of athletics, physical education and recreation.

It is their hope, and the hope of The Athletic Institute, that through this book the reader will become better in track and field—skilled in the basic fundamentals of this fine activity. Knowledge, and the practice necessary to mold knowledge into track and field ability, are the keys to real enjoyment.

GV  
1060.5  
.F56x

HEALTH &  
PHYS. ED.

Copyright, 1956.  
The Athletic Institute

UNIVERSITY OF FLORIDA



3 1262 08450 851 3

# TABLE OF CONTENTS

<b>Unit I</b>	<b>Sprinting</b>	<b>Pages</b>	<b>4-10</b>
<b>Unit II</b>	<b>Hurdling</b>	<b>Pages</b>	<b>11-15</b>
<b>Unit III</b>	<b>Middle Distance, Distance and Relay Racing</b>	<b>Pages</b>	<b>16-22</b>
<b>Unit IV</b>	<b>Running Broad Jump</b>	<b>Pages</b>	<b>23-26</b>
<b>Unit V</b>	<b>High Jump</b>	<b>Pages</b>	<b>27-34</b>
<b>Unit VI</b>	<b>Pole Vault</b>	<b>Pages</b>	<b>35-38</b>
<b>Unit VII</b>	<b>Discus Throw</b>	<b>Pages</b>	<b>39-43</b>
<b>Unit VIII</b>	<b>Shot Put</b>	<b>Pages</b>	<b>44-47</b>
<b>Unit IX</b>	<b>Javelin Throw</b>	<b>Pages</b>	<b>48-52</b>
<b>Training</b>	<b>Tips for Track and Field</b>	<b>Page</b>	<b>53</b>
	<b>Tips on Sprinting</b>	<b>Page</b>	<b>54</b>
	<b>Tips on Hurdling</b>	<b>Page</b>	<b>54</b>
	<b>Tips on Middle Distance Running</b>	<b>Page</b>	<b>55</b>
	<b>Tips on Distance Running</b>	<b>Page</b>	<b>55</b>
	<b>Tips on Relays</b>	<b>Page</b>	<b>56</b>
	<b>Tips on High Jumping</b>	<b>Page</b>	<b>56</b>
	<b>Broad Jumping</b>	<b>Page</b>	<b>57</b>
	<b>Tips on Discus Throwing</b>	<b>Page</b>	<b>57</b>
	<b>Tips on Pole Vaulting</b>	<b>Page</b>	<b>57</b>
<b>Glossary of Terms</b>		<b>Page</b>	<b>58</b>
<b>Selected References</b>		<b>Page</b>	<b>61</b>
<b>Official Track &amp; Field Rules</b>		<b>Page</b>	<b>61</b>
<b>Available 16mm Motion Pictures</b>		<b>Page</b>	<b>62</b>
<b>35mm Sports Instruction Slidefilms</b>		<b>Page</b>	<b>63</b>



# UNIT ONE

IMPROVE YOUR

# SPRINTING



The most glamorous events on the track are the sprints—distances up to a hundred and twenty yards outdoors, and indoor distances up to eighty yards.

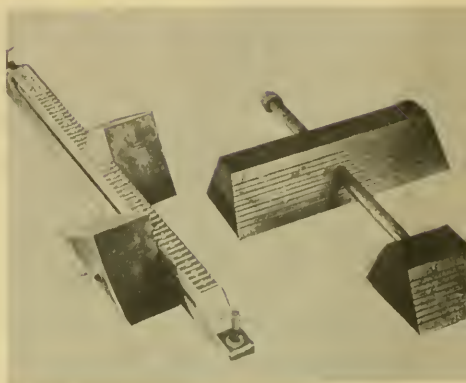


Although most boys who turn out for track want to take part in these popular races, it's a good idea to remember that success in these events requires certain special qualities such as natural speed and a short reaction time.

Proper starting is one of the most important fundamentals of good sprinting. Races are often decided by inches made or lost at the start.



That's why every sprinter should use a standard starting block for the support that gives the fastest getaways. It should be of good quality—a one-piece unit—easy to set up and to store. When the starter says "Take Your Mark"



... place your drive leg on the front block. If you kick a football with the right foot, you're right-footed, and your left leg is your drive leg. Your other foot, the kicking foot, is placed on the rear block. The next command from the starter is "Get Set"...



...and you raise your body till your hips are at least as high as your shoulders. Your arms should be straight, with the weight evenly distributed between your front foot and your hands.





Notice that the weight is on the tips of the fingers and the thumb, and that your hands are placed behind the line to avoid fouling.



The distance between your feet on the starting blocks is a matter of personal preference. Find the position that feels the most comfortable for you—the one that gives you the most power in starting. Then mark that position so you can use it every time. In general, there are three starting positions that sprinters use.



The medium start with the rear knee about opposite the toes of the front foot...



...an elongated start with the rear leg farther back, so the knee is about even with the ankle of the front foot.



...and the bunch start where the toes of the rear foot are only about twelve inches from the toes of the front foot. By experimenting during practice you can find the starting position that works best for you.

As the gun sounds, drive forward. Thrust hard with the front, drive leg, bringing the rear foot rapidly forward at the same time—barely clearing the ground.

It's extremely important that you drive *forward* in the direction of the solid arrow rather than up, in the direction of the dotted line. Remember, drive forward, not up.

If your weight is well forward, as it should be, the first few steps will be short. A long first step checks the forward momentum. So keep your steps short, your weight forward.





Pump your arms hard at the start. Each arm swings out with the opposite leg, in the natural way. But the arm swing is exaggerated, a hard piston-like motion that compensates for your leg drive.



During the first fifteen yards your body gradually adjusts to a normal running position, and your arm action keeps the body properly aligned.



Once you're in full stride, your body must maintain a definite forward lean without weaving or wobbling from side to side.



In this normal running position your arm action should become natural and relaxed. Be sure your arms swing in the direction of the run. A diagonal swing causes a jerky motion that wastes strength and checks your speed.

And try to keep back-kick to a minimum by running on the toes with a high knee action.



In short sprint races you should exert your maximum effort for the whole distance. But in longer sprints, like the two-twenty, experienced sprinters learn to relax without losing their speed or form. This method of conserving energy during the middle of the race is called floating.



There's a technique to finishing too. You'll make the best finish if you assume the finish line is ten yards beyond the tape. Run through the tape, don't jump into it. There are many fancy, diving finishes displayed on the tracks each year. They make nice pictures but often lose races.



So remember, when you run in these short races. Drive straight out...





... use high knee action...



...and run through the tape. If you have a little natural speed and are willing to work at the fundamentals, you have an excellent chance of becoming a top-notch sprinter.

# UNIT TWO

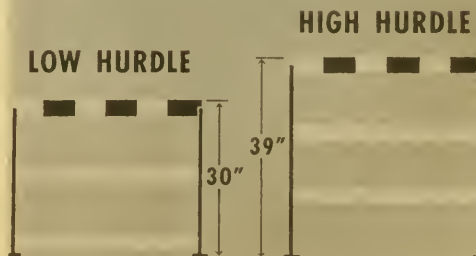
## IMPROVE YOUR

# HURDLING

The hurdle race is a sprint to the first hurdle, a sprint between hurdles, and a sprint to the tape. Between sprints the basic factor in success is form over the hurdle. You must clear these obstacles with as little loss of speed as possible.



In high school meets, the low hurdles are thirty inches high and the high hurdles thirty-nine inches. Most high schools have 180-yard or 200-yard races over the low hurdles and a 120-yard race over the high hurdles. Let's first examine the fundamentals of high hurdling.







Starting is just as important in the hurdles as it is in the sprints. Just as in the sprints, races can be won by a few inches gained at the start. So always use starting blocks, placing your drive foot on the front block. Then, when the gun sounds, drive forward toward the first hurdle.



A hurdler comes to a normal running position sooner than a sprinter, but be careful not to gain an erect position till you're eight to ten yards from the start.



You should cover the fifteen yards to the first hurdle in eight strides. It may take you ten strides at first, but work toward doing it in eight. No matter how many steps you use, you should practice running the distance to the first hurdle till you could clear it blindfolded.



Begin clearing the first hurdle by leaning forward and lifting your lead leg as the other leg pushes you forward.

Your lead foot reaches forward and up till it can clear the hurdle. To help maintain balance and keep your body leaning forward, stretch your opposite arm and hand toward the toe of your lead foot. As soon as the rear foot leaves the ground...



...the rear leg starts forward. Turn the toe of this foot up to keep it from hitting the bar as it crosses.



Lean forward as the second leg comes through. One of the most common faults in hurdling is failure to lean forward at this point. If you don't keep your body forward, you'll find your trailing leg hitting, and the lead leg won't come down as quickly as it should.



Your shoulders must remain parallel to the finish line at all times. Don't turn your body as you go over the hurdle, and be sure your lead leg comes straight down. These are important factors in keeping proper balance.





After your lead leg has touched the ground your head, shoulders, and hips must face forward. You should come off the hurdle in good sprinting position—your mind already concentrating on the next barrier.



A low-hurdle race, regardless of the distance, is even more like a sprint. As a matter of fact, the best low hurdlers are often sprinters.



Indoor low hurdles are ten feet apart and should be covered in three strides. Outdoor low hurdles are eighteen or twenty feet apart and should be covered in seven strides. Again, you may not be able to cover the distance in seven strides at first. But, if you take an extra stride, it means alternating lead legs on each hurdle. So keep practicing till you can make it in the proper number of strides.



The main difference in form between the high and low hurdles is body angle. When you run the low hurdles you don't lean into the hurdle as much, and the stretch of the lead arm is not so pronounced.

Always concentrate on your own race. When you come off a hurdle your only thought must be on the next barrier. Pressing to catch a man in front or glancing at an opponent only loses valuable time and can cause a bad spill.



Hurdling is mainly a form event and form can be learned. The process may be long and tedious, but there have been many champions who have reached the top because they had plenty of patience and determination.



# UNIT THREE

## IMPROVE YOUR

## MIDDLE DISTANCE, DISTANCE AND RELAY RACING



Success in the middle distance races is a measure of your ability to combine the speed of sprinting with the endurance of distance running. Beginners should consider all races from the quarter-mile through the mile as middle distances. Most college coaches classify the quarter-mile as a sprint, but a high school runner usually lacks the stamina to sprint the entire distance.



Cover the first fifty yards of the quarter-mile as a sprinter would, getting to a position where you have plenty of running room.



Your form is similar to that of a sprinter, except that your body is a little more erect, and your knees don't lift as high.



Try to reach the two-twenty mark at slightly slower than your best time, in a stride that's relaxed but still maintains your speed.



Then cover the last seventy-five or a hundred yards at top speed. Run the quarter-mile as a conservative sprint that carries your speed over a longer distance.



Half milers and milers should also be able to run at pretty good speeds, but your knee action isn't as pronounced as in the quarter-mile, and your body is more erect.





Carry your arms about waist high with an easy, relaxed motion. Constant practice will help you find a running style that's both comfortable and efficient.



Be sure your pace isn't too fast during the first lap, tiring you early and leaving you with no energy for the final part of the race.



Work with various running speeds and different lengths of stride, because during the course of a race you may have to sprint for position, settle down to a relaxed stride, and then sustain an extended drive for the tape. Very often the boy who does the thinking wins the race.



In this case, the runner in the black shirt has run into a position where passing is impossible. He is in a "pocket" or "box." When you're behind another man you intend to pass, always run a little to the outside. That way, anyone coming up from behind will have to run very wide to pass you.

Coming into contact with another runner as you pass is a foul and will cause you to be disqualified. So always run wide enough to avoid a foul, and don't cut back in lane 'til you're two strides in front of the other runner.



Never look away. Keep your eyes to the front, and drive through the finish line. In middle distance races careful strategy is just as important as speed and endurance.



The problems of the distance man are a little different. Distance men must learn to pace themselves so they can run laps on a given schedule. To be a good distance runner you must develop the ability to distribute your energy evenly over the distance to be covered.



Most people think a distance runner runs on the heels of his feet. This just isn't so. You should land low on the ball of your foot, drop to your heel, and then push forward from your toes.





Stay relaxed, and use a low arm swing. Remember that the purpose of form in distance running is to conserve energy.



Try to develop a style that's efficient and, what's more important, comfortable. Breathe through both your nose and your mouth, since this is the quickest way for your body to take in the needed oxygen.



The key to good distance running is the ability to overcome the mental feeling of being tired that always precedes actual physical fatigue.



Conditioning, of course, is essential to success in all of these longer races. But, be sure to spend plenty of time on speed work, so you'll be able to step up your pace when you have to.

Since distance and middle distance runners, as well as sprinters, are often called upon to run in relay races, it's a good idea to practice making relay passes.



As the incoming runner approaches the exchange zone, the outgoing man should start to move forward. Both runners should be in motion as the baton is handed off.



The incoming runner must be sure to hold the baton at the bottom so the man in front has plenty of room to get a good grip on it.



In distance relays where the incoming man is tired, a visual pass is used. The outgoing man looks back and presents his hand, palm up, so the baton may be layed forward for him to grab.







In sprint relays the front man should never look back. The incoming runner swings the baton with an underhand motion into the outstretched hand of the outgoing man.



If there's any chance that you'll be called upon to run on a relay team, get plenty of practice making passes. Practice receiving the baton as well as passing it. Smooth, efficient passing is often the biggest factor in winning a relay race.

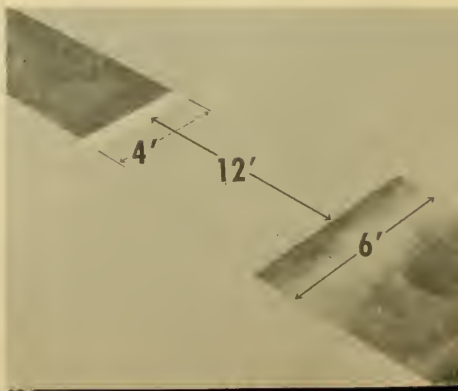
# UNIT FOUR

## IMPROVE YOUR

## RUNNING BROAD JUMP

There's no special type of body build that makes a good broad jumper. Champions have come in all sizes and shapes. But all good broad jumpers are fast and have plenty of spring in their legs.

After gathering speed on the runway, a broad jumper leaps from a take-off board at least four feet long and up to twenty-four inches wide. To avoid fouling, your toe must not touch beyond the front edge of this board. Your landing is made in a pit that begins twelve feet from the board and is at least six feet wide.





The broad jump starts with a run of from 90 to 125 feet. Since this approach must bring your take-off foot down on the board without any break in stride...



...it's important to find just the right starting point. Keep experimenting until you can pace off the proper distance every time. When you find the right starting point, be sure to mark it.



Then begin your run, taking the first stride with your take-off leg. By the time you're 45 to 60 feet from the board, you should be running at full speed.



Somewhere in this area there should be a second check mark, so placed that an even stride brings your take-off foot down beside it as you pass. The right position for this second check mark is found by the same trial and error method used to find your starting point.

To gain maximum power off the board, you should be as relaxed as possible during the final three steps of your run. Let your body prepare for a driving leap from the board.



Your take-off foot hits the toe board almost flat, the heel touching only slightly before the toes. Your foot rocks from heel to toe ...



...as you drive up and out. During this drive, the knee of your kicking leg swings up vigorously, helping you get extra lift.



Even your chest and chin go into the leap. Push them as high as possible. If your take-off is made correctly ...





...you'll reach your maximum height with your chin and chest up, your back slightly arched, and your feet trailing a little behind the rest of your body. Use your arms to maintain balance. At the crest of your flight...



...swing your hips forward and straighten your legs. You should be in a modified sitting position as you drop toward the pit...



Land with your feet spread about 8 inches apart so your body can go between your knees and forward. To be sure you don't fall back beyond the point where your heels touched the pit...



...lean forward and flex your knees, at the same time, dropping your chin on your chest and swinging your arms down and back.



Practice the fundamentals of broad jumping until good form becomes a habit. Work for more speed on your approach, more drive from your take-off, and more balance in your landing.



## UNIT FIVE

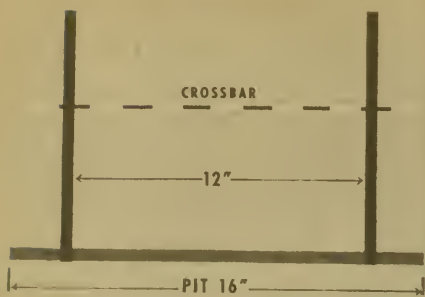
**IMPROVE YOUR**

# HIGH JUMP

Running and jumping over obstacles has been a favorite amusement of boys for centuries. If you like to jump, and have a little natural spring in your legs, you can learn to be a good high jumper.



# HIGH JUMP LAYOUT



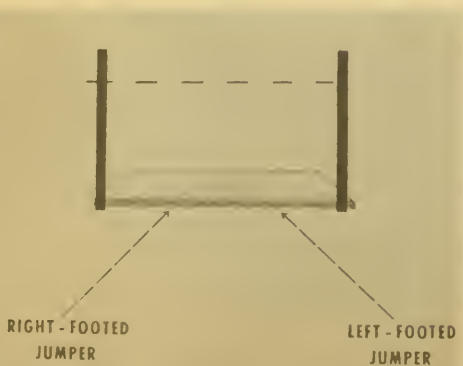
The obstacle to be cleared is a metal or wooden bar that rests on the top of two standards. These standards must be a least twelve feet apart, and the landing pit should be at least sixteen feet wide and twelve feet long.



The basis of good high jumping is the ability to convert forward momentum into the vertical momentum that will lift your body over the bar. There are two effective methods of doing this...the Straddle and the Western Roll.



Because of its simplicity, the beginning high jumper should always start with the Western Roll. Work with it and perfect it. Later on, when you've completely mastered the Western Roll, you can experiment with the Straddle.



Start the Western Roll by approaching the bar at an angle of about forty-five degrees, from the left if you're right-footed, from the right if you're left-footed...

This puts your kicking foot on the outside and the other foot, the take-off foot, on the inside. Your approach should finish on the take-off foot with the body at about arm's length from the bar.



A seven step run, beginning with the take-off foot, gives you a good, efficient approach. The first three steps are taken rather slowly, the next four are slightly faster and longer.



Practice a smooth, uniform run. Do it again and again till you can be absolutely certain of hitting the right take-off point.



When you've found the proper distance to start your approach, mark it so you can start from there every time.





If your check mark is where it should be, you won't have to worry about spacing your strides as you run toward the bar. You'll be able to concentrate on the jump.



The last stride of the approach should bring you down on the heel of your take-off foot. This foot acts as a rocker, rocking from heel to toe as your body weight comes up over the take-off foot.



As your weight is rocking forward, kick your outside leg up parallel to the bar, or in the direction of the far standard. Keep the kicking leg straight to give you a pendulum lifting action.



Rocking forward and driving up from the toes of the take-off foot produces an upward motion that combines with the kick of the outside leg to lift you up toward the bar.

On top of the bar you should be turned on your side by the vigorous kick of the outside leg. This is called the layout position.



Notice that the outside or kicking leg is relatively straight, while the take-off leg is tucked up between the body and the bar.



Kicking back slightly with the outside leg and dropping the inside arm toward the pit helps you turn down to land comfortably.



Land on the take-off foot and both hands. Then, to absorb the shock of the fall, roll over on your side.







Don't expect to do the Western Roll perfectly the first time, but when you practice, do your best to improve your form. Don't fall into the habit of making the same mistakes time after time.



After you've completely mastered the Western Roll, you can attempt the Straddle. Many outstanding high jumpers use this style, but good form is difficult to perfect.



Begin the Straddle the same as you would the Western Roll...



Approach the bar from a forty-five degree angle so that your last stride brings you down on the heel of your take-off foot.

Rock the weight forward and drive off the toes. And, just as with the Western Roll, kick your lead leg up parallel to the bar. The pendulum motion of the kick will turn your body toward the bar.



At this point the take-off leg trails and is *not* tucked under. This is where the Straddle differs from the Western Roll. You actually straddle the bar on your stomach, with your chest down. To master this style you must learn to roll your hips to get the second leg over.



It's a good idea to keep your inside arm by your side, so it won't get between your body and the bar.



As soon as you reach your maximum height, the toes of your trailing leg should be turned up to aid in clearing the bar. Turn your inside arm down to soften your landing.





Straddle landings are made on the outside hand and the lead or kicking foot. As you land, let the force of the fall roll you over on your side.



It's a great thrill to soar over a bar that's inches above your head, but remember, it takes patience and practice to develop the easy grace of good high jumping form.

## UNIT SIX

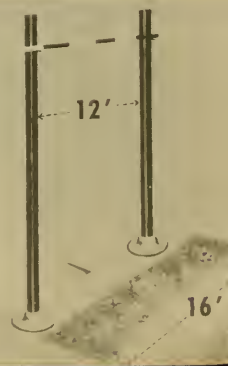
IMPROVE YOUR

# POLE VAULT

Pole vaulting is an event in which Americans have always excelled. Back in 1877 the first championship was won with a vault of nine feet, seven inches, but today, as vaulters approach sixteen feet, the sky seems to be the limit.



POLE VAULTING  
LAYOUT



The layout for pole vaulting consists of a metal or wooden crossbar resting on two metal standards placed at least twelve feet apart. Behind the standards is a landing pit that should be at least sixteen feet wide. And on the ground in front of the crossbar is a small wedge-cut hole called the vaulting box that holds the end of the pole during the vault.



Vaulting starts with a grip on the pole. For beginners it may be as low as eight feet from the front end. As your ability increases you can use a grip placed farther back. With the pole held over your head, your hands are positioned in a natural way. If you're right-handed, your right hand should be in back of your left. Bring the pole down by your right side, and you're ready to start your approach.



A running approach of from 70 to 110 feet builds up momentum for the vault. Carry the pole by your hip during the approach, so that the front tip is about as high as your head. Your hands can be anywhere from 24 to 36 inches apart—the left palm facing down and the right palm facing up.



As you plant your pole in the vaulting box, push it forward and up with your right hand, letting it slip through the fingers of your left hand. When you begin the take-off your hands should be only about four inches apart.



Drop your hips forward to start your body swinging, and spring up from your left leg. Your right knee swings high to help lift your body. Remember, drive up from your left leg, and swing your right knee high.



With your arms and legs extended your body swings forward like a pendulum—a smooth natural swing resulting from the momentum you gained during the run and take-off.



When the swing ends, your hips will be about level with your shoulders, and you'll have to use your arms to pull your body up the rest of the way. Flex your hips and knees, then pull yourself up along the pole...



...until you're in a modified hand stand. Ideal form would bring your right leg high with both the right foot and shoulder close to the pole. Your left leg is a little lower...



...as you push up and over the bar. While you're making this last push, your left leg starts to drop toward the pit. Your left hand leaves the bar first, and the final force is exerted by your right arm.





As you drop toward the pit your body may rotate slightly. Don't try to fight this rotation. Just relax...



...and let your body prepare for the jar of the landing. Your landing will be softer if you help absorb the shock by rolling over on your side. But be sure you don't start to roll until your feet have actually touched the pit.



Vaulting takes a good deal of energy, so use every means to conserve this energy. Try to clear every height on the first vault, and don't start too low. When you're in competition, always take as few vaults as possible, after you're thoroughly warmed up.

# UNIT SEVEN

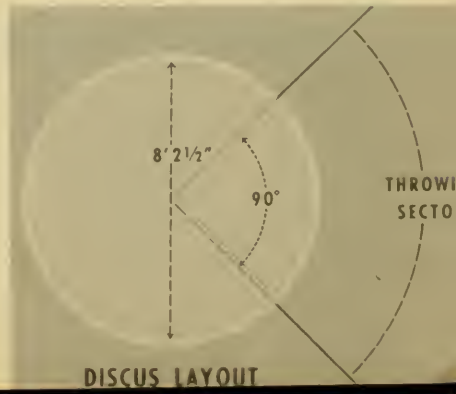
IMPROVE YOUR

## DISCUS THROW

Discus throwing has been a popular field event since ancient times. But the event has been so refined by present day champions that the famous Greek athletes would scarcely recognize it.



The discus is thrown from a circle eight feet, two and a half inches wide, and must land within a ninety degree sector marked on the ground. To avoid fouling you must not touch the marking band of the circle or any area outside the circle until after the judge has marked the point where the discus landed.





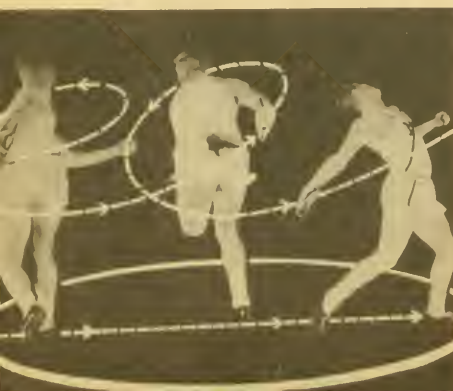
The discus itself is either hard rubber or wooden with a metal rim. It's eight and a quarter inches in diameter and weighs three pounds, nine ounces. A college discus is a little larger and heavier. Good throwing form with the discus starts with your grip.



Place the discus in the palm of your hand with the first joint of all your fingers over the edge and slightly spread. Your thumb rests on the side of the discus at about a forty-five degree angle to your index finger.



Before trying any sort of approach, it's a good idea to practice throwing the discus from a standing position. Work with the throw until you can get the discus to cut through the air without wobbling. To get any real distance from your throw...



...you must use an approach, a turn that carries your body over approximately a straight line from the back of the circle to the front. The purpose of this turn is to accelerate the discus so momentum and body strength can be used to the best advantage.

Start at the back of the circle with your feet pointing a little to the rear. Swing the discus back in a relaxed arc. Then, as the discus reaches the extreme rear of the swing, begin your forward turn.

As your body twists forward, your weight transfers from your right foot over to the left. Your weight remains over your feet as you move toward the front of the circle.

Your right foot leaves the ground to come over and around the left foot...

...and the left foot, in turn, leaves the ground as you hop down onto a bent right leg. During the turn your right shoulder and throwing arm should be held back so they trail your turning body.







With the turn completed the right leg is still bent, ready for the drive into the throw. The left leg is almost straight.



Pull the discus through at about hip level as your right leg straightens, and your hips start to rotate forward.



As your hips come through, your weight begins to transfer to the left leg...



Then the shoulders swing around, and your arm pulls forward in a steady, powerful arc. Your chest drives forward and up.

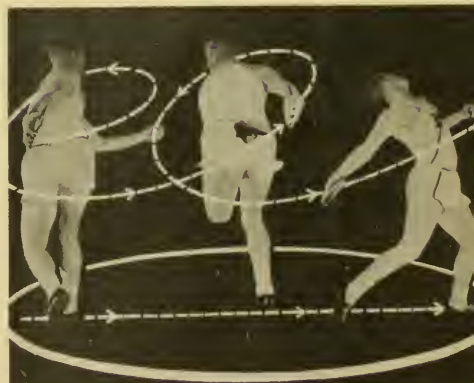
The final impetus is given by a snap of your wrist as your body weight goes up and over your left leg. To help you recover and prevent fouling...



...shift your weight over to your right foot after the discus has left your hand. But remember, this weight shift is only a recovery action and should never start until you've completed your throw.



Your turn across the center of the circle should start slowly and increase in speed—a smooth, even spin that leads into a driving throw.



So many different muscles are used in the various phases of the throw that there are few special discus exercises. All-around body conditioning and careful improvement of your form are the best ways to develop winning distance.



# UNIT EIGHT

IMPROVE YOUR

## SHOT PUT



Shot putting was originated by the Celts and gained its popularity in Scotland and Ireland where it was first known as "putting the stone". The first iron shot was used at Dublin University.



All the action in putting the shot takes place within a circle seven feet in diameter. Around the front of the circle is a toe board four inches high that gives your foot support and helps keep you from fouling.

Colleges and universities use a 16 pound shot, high schools a twelve, and junior high schools an eight. But regardless of the weight, the problems of form, technique, and training are the same.

Always push the shot from your shoulder. *Don't throw it.* A throwing motion with the heavy weight is against the rules and can cause serious injury to you.

Begin your put by cradling the shot comfortably in your fingers with the thumb at the side for balance. Carry it above and in front of your shoulder, letting your hand drop back so your wrist is relaxed, not rigid. When you've become adjusted to the weight and feel of the shot...

Take a position at the rear of the circle with your body weight resting on your right leg and your right foot planted solidly in the turf—toes pointing slightly to the rear.





Shift your weight forward, toward the front of the circle, by dropping your left hip. Then drive forward from the right leg.



As your body moves across the center of the circle, your right foot hops under it with a low, smooth motion that barely allows your spikes to clear the ground.



This movement across the circle is designed to accelerate the shot. The motion must be constant and uninterrupted, so you almost appear to be gliding forward.



You should reach the center of the circle with the right knee bent and the right foot flat on the ground, toes still pointing a little to the rear. Your right hip is tucked or flexed, ready to help in the final drive up and out.

The actual putting action is a lifting of the whole right side of your body—a drive up from your right leg that causes the weight and power of your body to pass up and over your front leg.



Even the chest and chin are thrust into the put, as the upward drive from your right leg transmits the power through your hips to your shoulders...



...and then to the smaller but faster muscles of your arm and hand. A final flick from the wrist adds additional force as the shot is released. After the shot leaves your hand...



...shift your weight quickly from your left to your right foot. This movement acts as a recovery, helping check your forward momentum to prevent fouling.







Do your best to develop a smooth flow to your putting form. Any hesitation breaks up the acceleration and loses distance. Always think of the shot put as one continuous action rather than a series of separate stages.

## UNIT NINE

**IMPROVE YOUR**

# JAVELIN THROW



Throwing the javelin has evolved from the primitive practice of spearing fish and animals for food. The Swedes and Finns were the first to introduce it to modern athletic programs, and the Finnish method of throwing is the most efficient in use today. But before trying to learn the Finnish method, it's a good idea to get acquainted with the javelin itself.

Pick it up and spend a few minutes getting the feel of it. Notice that it's essentially a long spear. It weighs not less than one-and-three-quarters pounds and has a sharp metal tip.

Hold the javelin so it crosses your hand diagonally, from the base of the index finger to the heel of the hand. It should be held firmly enough so you can control it, but not rigid. Fundamental javelin form consists of an approach and a throw.

But don't attempt any sort of approach till you've learned to throw from a standing position. Be sure you can make the javelin travel through the air properly, so it lands point first. Once you've mastered the throw, a good approach will add many feet to your distance.

Your approach starts with a run of about a hundred feet. The javelin is held above the shoulder, and the tip points in the direction of the run. When you're about ten yards from the foul line...





...lower the javelin and draw it back. This action turns your whole body to the right.



And your right foot crosses over the left in what is called "the front cross step." There's nothing complicated or unnatural about this step. It's just a continuation of the run with your body turned to the side. After your right foot lands...



...your body weight should be over the bent right leg, so you'll be in a position to drive into the throw when your left foot hits the ground.



As your left foot comes down, it should partially check the momentum of the lower half of your body. At this point you should be in a perfect throwing position, with your right arm drawn back and your left side facing the front.

Body power is transferred to the javelin by driving up with your right leg and rotating your hips to the front and up.



Pull the javelin forward with your elbow bent, leading the hand, causing it to pass over your shoulder between your elbow and your head.



Then release the javelin from a position about a foot over your head and in front of your right shoulder.



The final force is applied by a quick snap of the wrist as the javelin leaves your fingers. When it starts its flight it should be at an angle of about forty-five degrees to the ground. Once the javelin has left your hand, some sort of recovery is necessary to check your momentum and maintain balance.





Transferring your weight to the right foot gives you the best recovery, but be sure you don't start your recovery till after you've completed the throw.



Work with the front cross step till you can use it to convert a fast approach into a driving throw. Increasing your distance with the javelin is mainly a matter of developing your throwing ability and perfecting smoother form.

## TRAINING TIPS FOR TRACK & FIELD

The training program is probably the most vital part of becoming skilled in track and field events. Due to the fact that each event requires different physical abilities, the training program must vary with stress placed upon those functions which will be most beneficial to the athlete competing in his specialty.

Brief consideration will be given on the following pages to some of the more important aspects pertaining to general conditioning and to specific skills required in the specific events.

### General Training and Conditioning

Any training program that the track & field specialist undertakes to improve his skill must consist of the following factors:

- a. Graduated physical training.
- b. Proper diet.
- c. Sleep and rest.
- d. Mental conditioning for training and competition.
- e. Absence of tobacco and alcohol.

Here is a summary of the reasons why each of these factors is so important in track & field training and self-improvement.

**Graduated Physical Training** To bring the body to a state of top condition and efficiency, the athlete must practice a carefully thought-out training program. This program must be gradual, developing each organ and muscle system of the body proportionately. Each athlete must develop his own training schedule, based upon his own problems and physical abilities. A competent track coach should be consulted at the beginning of the training period to help the athlete schedule a program most suitable to his needs.

**Proper Diet** The proper approach to a training diet for track is balance and moderation. An athlete who eats at home usually receives a substantial, well-balanced diet. He should avoid exceptionally greasy foods and any others that he has found to disagree with him. During the track season, the athlete should avoid experimenting with new foods. On meet days, the athlete should eat sparingly. In no case should he eat later than three hours before competition. That meal should consist of nourishing food in moderate proportions.

**Sleep and Rest** Rest is essential in recuperating from strenuous exercise. Sleep and rest are as basic to good training as any other factor, and most track athletes require a minimum of nine hours sleep.



**Mental Conditioning for Training and Competition** Generally, in track and field, mental fatigue sets in before physical fatigue. Even the greatest athlete thinks he is tired before his body is really physically tired. Proper training, which builds self-confidence, will help the track athlete overcome this "feeling of being tired" and allow him to perform much closer to his real capacity.

**Tobacco and Alcohol** Tobacco and alcohol are two of the most common means of dissipating physical stamina. The track athlete cannot justify the use of either.

### **TIPS ON SPRINTING**

The sprinter may be of any body type, tall or short, heavy or light in weight. As a sprinter one participates in the most glamorous of track events. Sprinters are speedsters—and are crowd pleasers. However, there are few top-notch sprinters in any one year. This is due to the fact that the sprinter must have inherited qualities. He must have strong leg action, react quickly, and start fast.

Although the 100-yard dash is the most popular sprint event, the 440-yard and the 400-meter races are also regarded as sprints. It isn't uncommon for a great miler to run the first 220 of his race in 22 seconds or better. In fact, most world record holders at 400-meters and 440-yards have also won many short sprint races. It is difficult to point out many quarter mile champions who do not have outstanding leg speed. Wind sprints are essential to the training program of the sprinter, with the continual development of leg speed.

### **TIPS ON HURDLING**

The low-hurdle is a sprint over  $2\frac{1}{2}$  foot obstacles, and often the champion is a sprinter. Form is the most important factor in this event.

The basic problem in hurdling is the development of strength, so that the athlete can maintain the seven strides between hurdles for the entire distance. Difficulty encountered in controlling steps is due to lack of strength, a slow second leg, or a too rapid cut-down with the lead leg. Just as in sprinting, no purpose is served by the athlete's looking down the track when in the "get set" position. The low hurdler need not focus his attention on the first hurdle until he is five to six yards away from his marks. Hurdlers should work to the first hurdle so often in practice that they could clear it blindfolded if necessary. This is the only way to develop a fast start and individual confidence.

In high-hurdling, as in low-hurdling, the most important things are good starting and good sprinting. High-hurdlers (using a 42 or 39 inch standard) must follow a sprinter's program to develop these abilities. The hurdle race is first a sprint to the first hurdle, a sprint between hurdles, and a sprint to the tape. Between the sprints the basic factor to success is form over the hurdles.

In moving from the starting blocks to the first hurdle, a right-footed hurdler should place his left foot on the front block and cover the 15 yards to the first hurdle in eight strides. Some tall men have reversed the feet on the blocks and moved to the first hurdle in seven strides. And some short men have taken nine strides. But, generally, for best results the eight-stride approach is most practical.

One of the most important requirements for becoming skilled in hurdling is courage. The boy with courage takes spills and skinned shins in stride, the ones without courage become "hurdle shy." Continual practice is the sure way to gain courage, skill, and championship form.

### **TIPS ON MIDDLE DISTANCE RUNNING**

The two most popular middle distances are the 880-yard run and the mile.

Middle distance men are usually slender, with a ability to stride. They must have a great amount of quarter-mile speed.

Due to the fact that half-milers and milers are usually able to carry a good amount of speed, they naturally have a higher knee action and more forward body lean than distance runners. The length of stride for a miler is usually shorter than a sprinter's, but longer than a distance runner's. His arms should be carried about waist-high with a relaxed motion.

Proper energy distribution is a necessity to good middle distance running. In any race from 500 yards to the mile, the first quarter mile must be up to pace capacity but must not exceed it. With jockeying and lead changes, pace in the shorter race is often difficult to judge, but a rule of thumb is "stay-up, stay relaxed, and stay out of trouble." Pace comes with practice.

Passing merely for the sake of passing in a middle distance race is foolish. Passing should be done only if the pace is slow, or if the runner is ready to make the drive for the tape.

### **TIPS ON DISTANCE RUNNING**

Distance races are usually thought of as those races over one mile. Distance runners without exception should run cross-country in the fall of the year. It is not necessary to

run competitively, but the background that cross-country running provides is essential for best performance during the winter and spring. A minimum of five days each week during the fall should be devoted to long work through the woods or on a golf course or some other type of soft footing. During the track season, the majority of the work must be done on speed and pace work, with emphasis on rhythm of movement.

The athlete must develop the ability to run laps on a given schedule, for if there is a secret to distance running it is the ability to distribute energy equally over the distance to be covered. When the distance runner masters pace running, he can experiment with varying paces to improve his time in actual races.

### **TIPS ON RELAYS**

Relays are similar to sprints. One of the most important aspects of the relay is passing the baton. There are two techniques: (1) the blind pass, and (2) the visual pass.

The "blind pass" is used in sprint relays. The outgoing man stands inside the restraining line of the twenty-foot zone, looking back at the oncoming runner. When he starts to move he looks forward, accelerates rapidly, and extends his right arm to the rear with the hand waist high. The baton is placed in his hand by the incoming man, and he takes it blind, or without looking back. Thus, the responsibility for getting the baton pass-off rests with the incoming runner.

The "visual pass" is used in the longer relays such as the mile relay. Here the incoming runner is usually tired, and the responsibility for getting a pass-off is placed on the fresh, or outgoing man. The incoming man should not be expected to hit a target, with the extended baton. The outgoing man looks back to take the baton. Thus the responsibility for getting the baton pass-off rests with the outgoing or fresh runner.

### **TIPS ON HIGH JUMPING**

The problem in high-jumping is converting forward motion into vertical motion for crossbar clearance. There are two popular methods: (1) Western Roll, and (2) Straddle Style.

The college athlete will be able to use either style. However, the high school athlete should use the Western Roll and only attempt the Straddle Style after the Western has been mastered.

The run or approach is the same for both styles. The athlete runs at the bar so that his kicking leg will be his outside leg at take-off. Thus, a right-footed kicker runs

from the left side, a left-footed kicker from the right side. The approach should be at a 45-degree angle to the bar. The best approach is the seven step approach, with the first step being made by the take-off foot.

During this run, the jumper should make uniform strides and relax without making a hop, skip, jump movement.

### **BROAD JUMPING**

Broad jumping starts with the run. Regardless of the distance to be covered in the run, the athlete should use two check marks. The first should mark the starting point of the run, and the second mark should be a minimum 45 feet and a maximum of 60 feet from the toe board. The step off the first mark is with the take-off foot and the second mark is reached with the same foot.

At the take-off, the broad jumper must convert part of his forward motion to vertical height. Jumpers at the board should jump **UP** and **not out**. To gain maximum height off the board, the jumper must be relaxed and ready for a rapid extension of the take-off leg.

### **TIPS ON DISCUS THROWING**

Discus throwers are usually tall men, and the champions are quite heavy in weight, some well over 200 pounds. There have been few small men who have done well at discuss throwing.

A large, strong hand which is able to hold and control the discuss, plus well-developed arm and shoulder muscles are usually essential to discus skill. Since many muscles are used in the various phases of throwing, it is important that discus throwers strive for all-round body development. The legs and thighs as well as the abdomen are important areas to concentrate on in training.

### **TIPS ON POLE VAULTING**

A distinct advantage in pole vaulting is enjoyed by tall men, for they can hold the pole at a higher point during the vault with less effort. In addition, their usually longer arms enable them to push their bodies higher during the final stage of the vault. Along with size, the pole vaulter must have good leg speed, coordination, and exceptional arm and shoulder strength.

During competition, a great deal of energy is expended, as vaulting is a strenuous event. Every means to conserve this energy should be employed. For instance, vaulting in a sweat suit requires more energy than vaulting without it, and also changes the vaulter's timing. It is, of course, imperative that the athlete take as few vaults during the meet



as possible, so that he will not be fatigued when he is called upon to produce his best effort. The vaulter should not attempt to clear every height, but save his best efforts for the maximum heights.

During competition, the placement of the standards may be a deciding factor. At low heights, the vaulter's standards are often set a foot or so from the back of the box. As the height of the bar increases, the vaulter must move the standards closer to the box. The coach, or a fellow athlete, must observe the vaulter from the side to determine if this placement of the standards is correct. The closer the standards to the box, the higher the vaulter can pole.

## GLOSSARY OF TERMS

**A.A.U.**—Amateur Athletic Union.

**ANCHOR**—The final or fourth leg of a relay.

**ANGLE OF DELIVERY**—Angle to the ground at which an implement is released.

**APPROACH**—The run and/or adjustments made by the athlete prior to the actual competitive effort.

**BALL-HEEL-BALL**—Method in which distance runners touch the foot to ground while running.

**BARRIER**—A term used for a hurdle.

**BATON**—The stick that is passed by a relay team.

**BLIND PASS**—A relay pass with the outgoing man looking forward.

**BOX**—The container in which pole vaulters plant the tips of their poles before taking off.

**BREAK**—Leaving the starting blocks before the gun sounds.

**CALISTHENICS**—Simple exercises done to warm up and prepare the body for activity.

**CHUTE**—The prolongation of the straightaway of an oval or semi-oval track.

**CIRCLE**—Competitive area for the shot, discus, and hammer.

**CLOSED POSITION**—A powerful throwing position for shot and discus men in which the right shoulder and hip are back.

**CUT-DOWN**—The dropping of the lead leg in hurdle clearance.

**DRIVE-LEG**—The leg exerting the force during stride or take-off.

**FIELD**—Area of participation, as contrasted with the running track.

**FLYAWAY**—Act of leaving the pole at the height of a vault.

- FOUL**—A competitive effort wasted due to an infraction of a rule.
- FRONT CROSS**—Finnish method of getting the body into position for javelin throwing.
- FRONT RUNNER**—One who can run well leading and setting pace.
- GRIP**—Hand hold on an implement.
- HEAD WIND**—Wind blowing toward the athlete.
- I.C.A.A.A.A.**—Intercollegiate Association of Amateur Athletes of America.
- INTERCOLLEGIATE COMPETITION**—Competition between institutions at the college level.
- INTERSCHOLASTIC COMPETITION**—Competition between institutions on the secondary level.
- JOGGING**—Easy bounding running at a very slow pace.
- KICK**—Leg speed used at end of a race.
- KICKER**—Runner who depends upon kick to win.
- LEAD LEG**—The first leg, or kicking leg, in jumpers.
- LEAD LEG**—The first leg over a hurdle.
- LEAD-OFF**—The first man to run on a relay team.
- LEG**—A section of a relay.
- MARKS**—An athlete's starting point for a race.
- N.C.A.A.**—National Collegiate Athletic Association.
- N.F.S.H.S.A.A.**—National Federation of State High School Athletic Associations.
- PACE**—The rate of covering ground while running.
- PASSER**—The relay runner who "hands off" the baton.
- PASSING**—Not taking one's jump or vault as it comes up.
- PASSING ZONE**—A 20-yard zone in which a pass must be made during a relay.
- PULL-UP**—Raising by pulling, of the body in pole vaulting.
- PUSH-OFF**—Pushing up and away from the vaulting pole at the top of the vault.
- RECEIVER**—The man receiving the baton in a relay pass.
- RECOVERY LEG**—The nondriving leg during running.
- REFLEX**—Automatic and involuntary muscle reaction.
- REVERSE**—The follow-through after a put or throw.
- RHYTHM**—Uniform well-co-ordinated running action.
- SHIFT**—Moving the vaulting pole from the carry position into the vaulting box.
- SHOT**—Iron or brass spheres, 8, 12, or 16 pounds in weight that are used for competition.
- SHUTTLE**—A relay where the legs are run back and forth.



- SPRING**—Bounce or lightness of foot.
- STANCE**—Particular starting position of an athlete.
- STANDARDS**—Upright objects used to hold cross-bars during jumping or vaulting contests.
- STRADDLE**—Method of high jumping by straddling the bar, face down.
- STRAIGHTAWAY**—Straight area of the track from one curve to the next.
- STRIDE**—The distance covered by a leg cycle while running.
- SWING**—Pendulum action of the body or a part of the body.
- TAKE-OFF**—Act of leaving ground as in hurdles, jump, or vault.
- TAKE-OFF FOOT**—Foot that drives athlete from the ground.
- TAKE-OFF MARK**—Spot at which athlete leaves the ground.
- TECHNIQUE**—Form used to execute an action.
- TOE BOARD**—A restraining board for certain field events, such as the shot put and broad jump.
- TOUCH OFF**—Touching a relay runner rather than giving him a baton, as in shuttle races.
- WARM-UP**—Gradual process of raising the body temperature, etc., prior to strenuous exercise or competition.
- WESTERN ROLL**—Method of high jumping, clearing the bar on the side or back.
- WIND SPRINT**—Practice sprint for developing and conditioning the wind.

## **SELECTED REFERENCES**

- Bresnahan, George T., and Tuttle, W. W., **Track and Field Athletes**. St. Louis: The C. V. Mosby Company.
- Canham, Don, **Track Techniques Illustrated**. New York: A. S. Barnes & Company.
- Canham, Don, **Cross Country Techniques Illustrated**. New York: A. S. Barnes & Company.
- Doherty, J. Kenneth, **Modern Track and Field**. New York: Prentice-Hall, Inc.

## **OFFICIAL TRACK & FIELD RULES**

- Official High School Track & Field Rules**. 35-cents per copy, available from: National Federation of State High School Athletic Associations, 7 South Dearborn St., Chicago 3, Ill.
- Official College Track & Field Rules**. \$1.00 per copy, available from: National Collegiate Athletic Bureau, Box 757, Grand Central Station, New York 11, N. Y.
- Official AAU Track & Field Rules**. \$1.00 per copy, available from: Amateur Athletic Union of the United States, 233 Broadway, New York, N. Y.
- Official Women's Track & Field Rules**. 50-cents per copy, available from: National Section on Girls' and Women's Sports, 1201—16th St., N.W., Washington 6, D. C.

## AVAILABLE 16MM MOTION PICTURES

**Dashes, Hurdles, and Relays.** (12 min.) Rental—\$2.25. Available from: Ideal Pictures, Inc., 58 East Water St., Chicago 1, Ill., or United World Films, Inc., 1445 Park Ave., New York 29, N. Y.

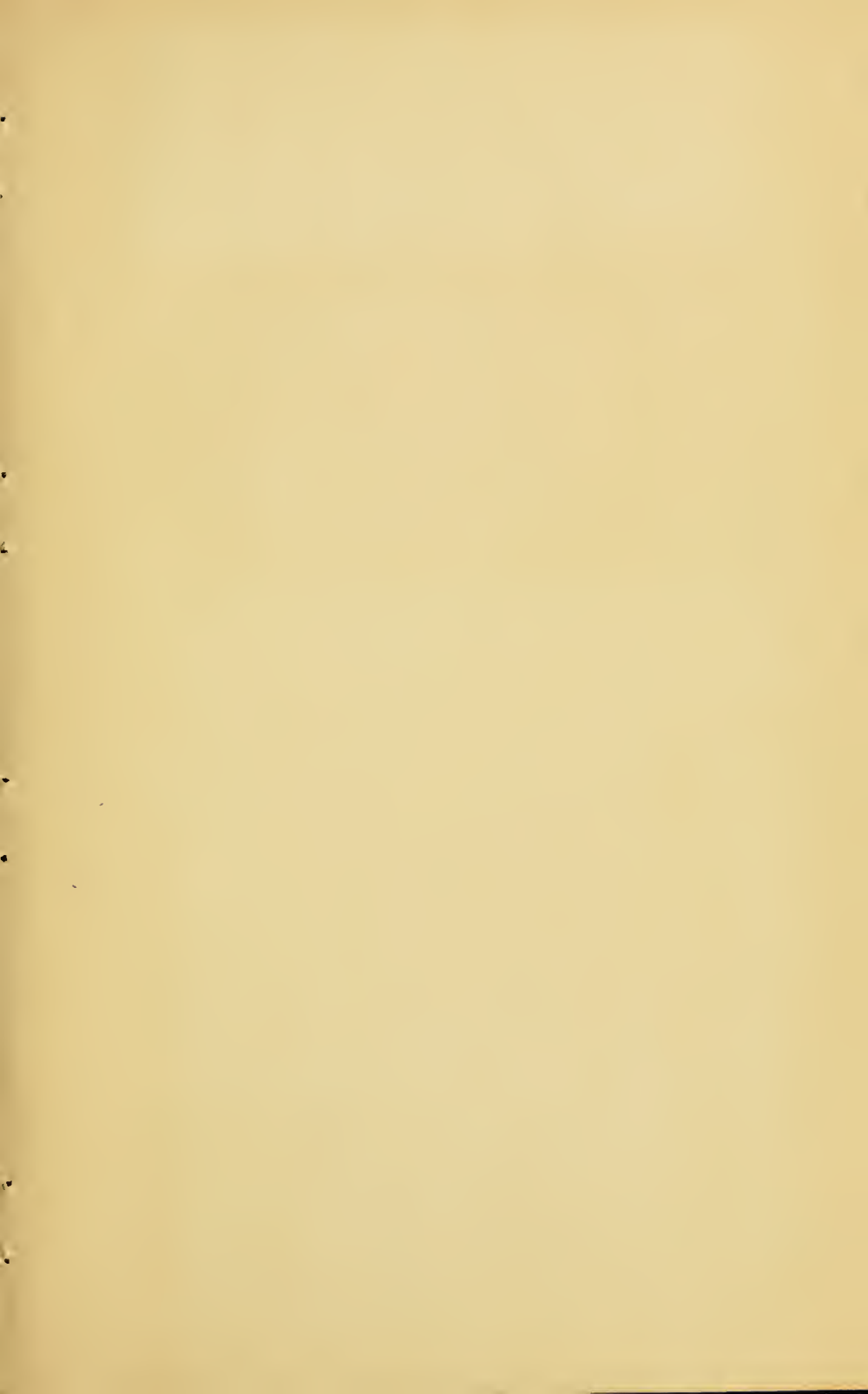
**Track and Field Training Problems.** A 12-reel track and field film series, in 16mm sound. Subjects include: The Sprints (2 reels); The Broad Jump (1 reel); The Relays (1 reel); Shot Put (1 reel); The Javelin (1 reel); Pole Vault (1 reel); The Hurdles (1 reel); The High Jump (1 reel); Discus (1 reel); Distances (1 reel); Middle Distances (1 reel). For sale at \$45 per reel, or \$475 for the series, from: United World Films, Inc., 1445 Park Avenue, New York 29, N. Y. Individual subjects may be rented from Ideal Pictures, Inc., 58 East Water St., Chicago 1, Ill., for \$2.25 per reel, exclusive of transportation.

**Collegiate Track & Field Championships.** Films, recording the principal events of the annual National Collegiate Athletic Association track & field championships, are available to schools and the general public. Each film is approximately 30 minutes in length. Rental—\$3.00 per film to members, \$5.00 to non-members. Films cover the following championships: 1938 at Minnesota; 1939, Southern California; 1941, Stanford; 1947, Utah; 1948, Minnesota; 1948, Olympic Trials; 1949, Southern California; 1950, Minnesota; 1951, Washington; 1952, California; 1953, Nebraska; 1954, Michigan; 1955, Southern California; 1956, California. Order films by date and site from: NCAA Film Service Laboratory, 1121 West 47th Street, Kansas City 12, Mo.

### **35MM SPORTS INSTRUCTION SLIDEFILMS**

**Beginning Track & Field.** Complete set of 5 slidefilm units, in full natural color. Consultant: Don Canham, Track Coach, University of Michigan. Contents: 5 units: (1) The Sport; (2) Starts, Sprints, and Hurdles; (3) Middle Distance and Long Distance Running; (4) Jumping Events; (5) Throwing Events. Also includes explanation and procedures in each event, including hurdles, dashes, relays, pole vault, discus, broad jump, javelin, etc. Details starting techniques and conditioning. 300 frames. For sale—\$58.75 complete set in sound, or \$54.00 complete set silent. Available from: The Athletic Institute, 209 So. State St., Chicago 4, Ill.







Date Due

